2. Recognition of infections

2.1 Signs and symptoms of some communicable diseases

The typical signs and symptoms of some communicable diseases are listed in Appendix A for quick reference. The list is not meant to be exhaustive. For more information about different types of communicable diseases, please visit the CHP website: www.chp.gov.hk .

Please note that many other diseases may also cause the above signs and symptoms. These complaints should be compared with the past health record of the individual. As fever is a common presenting symptom, residents' temperature should be checked regularly and their personal health records should be properly maintained.

2.2 Observation and assessment

Infections can be identified by observing and monitoring of certain signs and symptoms. Staff and carers should pay more attention to those with special health conditions or medical devices as these residents are more prone to infections. It is a good practice for the infection control officer (ICO) to conduct a preliminary health assessment for those who were suspected to have infection with the "Checklist on signs and symptoms of infections" (Appendix B) and seek prompt advice from the medical professionals.

Arrange the resident for urgent medical consultation once he/she is found to have the following conditions:

- Disorientation, confusion, restlessness
- Weaker than usual
- Lethargy
- Fall
- Shortness of breath
- Increased or irregular heart rate
- Unexplained changes in behaviour and body functions (e.g. loss of bladder control or faecal incontinence)

Person with untreated infection may serve as a reservoir and continue spreading the infective agents to the others. Thus, it is very important to detect infected persons early.

2.3 Measuring body temperature

2.3.1 The importance of taking body temperature

Most people develop fever when being infected, but there are exceptions. Some people have lower baseline body temperatures, even their body temperatures have raised during infection, the body temperatures may still be within the reference range. These changes can only be identified when their usual body temperatures are monitored on a regular basis. Therefore, it is a good practice to check and document the body temperature of high risk residents daily.

Besides, residents with the following conditions should have their body temperature checked more frequently:

- Being feeble
- With communication problems
- Having symptoms of infection
- Recently discharged from hospital
- Having been exposed in communicable diseases outbreaks, particularly acute respiratory diseases

If the temperature deviates from the resident's usual body temperature, he/she may have an underlying infection.

2.3.2 Core and surface temperature

Body temperature can be divided into core temperature and surface temperature. Core temperature refers to the temperature of deep tissues and can be taken through the oral cavity, rectum or ears; whereas surface temperature is the temperature of surface skin tissues and can be taken through the forehead or armpits. Comparatively, surface temperature is more easily affected by the surroundings.

<u>To avoid inaccurate measurement, staff should:</u>

- Be familiar with the correct use of thermometers.
- Use the same temperature taking method for each resident.
- Take temperature from the same body part around the same time every day to avoid deviations caused by changes in the surroundings.
- Defer temperature-taking when residents having exercise, after bathing or foods and drinks within 30 minutes.

Body temperature varies with age, time of the day and level of physical activity. For screening purpose, temperature above the reference reading quoted below will be considered as significant and staff should arrange medical consultation for the resident if fever is suspected.

Measuring method	Celsius scale (˚C)	Fahrenheit scale (˚F)
Ear	38.0˚C	100.4˚F
Oral	37.5˚C	99.5˚F
Armpit	37.3˚C	99.1˚F
Rectal	38.0˚C	100.4˚F

2.4 Proper use of thermometers

2.4.1 Choice of thermometers

There are digital, mercury and infrared thermometers in the market for oral, rectal, armpit, ear and forehead temperature measurement. Accuracy, suitability and convenience should all be taken into account in choosing the appropriate thermometer. Before using a specific thermometer, read the instructions carefully for the proper procedures and the reference range of the readings.

Infrared forehead thermometers are less accurate in reflecting the true core body temperature, although some institutions are using it for the routine temperature checking, it should not be the only available thermometers in institutions. Whenever in doubt, staff should use another type of thermometer to recheck the body temperature.

To reduce the risk of cross-infection, allocate a designated thermometer to each resident, especially those having an infection.

2.4.2 Methods of taking body temperature

Method	Steps for measuring	Points to note	Recommendations
Ear	(1) Switch on and check the functions of ear thermometer. (2) Cover the probe tip with a plastic probe cover. (3) Stabilise the position of the person's head. (4) Pull the ear backward and upward to straighten the ear canal and gently place the probe deep into the ear canal. (5) Press the SCAN button. (6) Remove the thermometer from the ear when it beeps. (7) Read digital display and record accordingly.	■ The ear temperature is usually 0.5℃ higher than the oral temperature. ■ Direction of the probe tip should be correct; otherwise it will give an inaccurate reading. ■ The ear pressed against the pillow during bed rest has higher temperature, so the other ear should be used for taking temperature.	■ Non-invasive, fast response time and with an easy-to-read display. ■ Not applicable for person with otitis or with obstruction of ear canal caused by ear wax.
Oral	(1) Ensure the person is conscious, cooperative and be able to close his or her mouth tight. (2) Cover the thermometer with a plastic shield. (3) Place the oral thermometer under the tongue near the root. (4) Instruct the person to close the mouth tight, and do not speak or bite on the thermometer. (5) Remove the digital thermometer when it beeps and check the reading. For a mercury thermometer, remove the thermometer after 3 minutes and check the reading. (6) Record accordingly.	■ Avoid cold or hot foods and drinks for at least 30 minutes before taking temperature. ■ If the resident accidentally bites off the mercury thermometer, he/she should be sent to the hospital immediately without delay.	■ Not applicable for persons who are unconscious, confused or who cannot close their mouths tight.
Armpit	(1) Put the thermometer under the armpit. (2) Place the person's forearm horizontally on the chest to hold the thermometer in position. (3) Wait for 6 to 8 minutes before checking the reading. (4) Mark the value clearly in record as armpit temperature.	■ Armpit temperature is usually lower than oral temperature. ■ The thermometer should be held tightly under the armpit when taking temperature. ■ Ensure the privacy of the residents and protect them from catching cold when taking temperature.	■ Unless for the very thin person with a socket-like hollow armpit, armpit measurement is suitable for conditions when all of the above temperature measurement methods are not applicable.

2.4.3 Cleaning and disinfection of thermometers after use

- Thermometers cannot be disinfected by heating methods as heat can affect their functions and cause damage.

Electronic thermometers

- There are various types of electronic thermometers in the market. Some can be immersed in disinfectant while some cannot. To ensure proper maintenance of the thermometers, read and follow the user manual for the recommended cleansing and disinfection method.

Mercury thermometers

- Handle oral and rectal thermometers separately.
- Wash thermometers with cold water and detergent until clean.
- Immerse in 70% alcohol for at least 10 minutes.
- Air dry and then store in a clean container with a cover.

2.5 What should be done when a resident develops fever?

If a resident has a temperature higher than the reference value (for details, please refer to Section 2.3.2) or 1˚C of his/her baseline, separate him/her from the others and arrange him/her to seek medical advice promptly. Staff should record the body temperature in the resident's personal health record as well as mark his/her name or bed number in the "Residents fever record" (Appendix C).

To enhance early detection of outbreak situation, the Infection Control Officer (ICO) is responsible to monitor residents' fever record for any unusual pattern.